Estimates of injecting drug users at the national and local level in developing and transitional countries, and gender and age distribution

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Objective: To present and update available national and subnational estimates of injecting drug users (IDUs) in developing/transitional countries, and provide indicative estimates of gender and age distribution.

Methods: Literature review of both grey and published literature including updates from previously reported estimates on estimates of IDU population and data sources giving age and gender breakdowns. The scope area was developing/transitional countries and the reference period was 1998–2005.

Results: Estimates of IDU numbers were available in 105 countries and 243 subnational areas. The largest IDU populations were reported from Brazil, China, India, and Russia (0.8 m, 1.9 m, 1.1 m, and 1.6 m respectively). Subnational areas with the largest IDU populations (35 000–79 000) are: Warsaw (Poland); Barnadul, Irtkustk, Nizhny-Novgorod, Penza, Voronez, St Petersburg, and Volgograd (Russia); New Delhi and Mumbai (India); Jakarta (Indonesia), and Bangkok (Thailand). By region, Eastern Europe and Central Asia have the largest IDU prevalence (median 0.65%) (min 0.3%; max 2.2%; Q1 0.79%; Q3 1.74%) followed by Asia and Pacific: 0.24% (min 0.004%; max 1.47%; Q1 0.37%; Q3 1.1%). In the Middle East and Africa the median value equals 0.2% (min 0.0003%; max 0.35%; Q1 0.09%; Q3 0.26%) and in Latin America and the Caribbean: 0.12% (min 0.002%; max 7.04%; Q1 1.76%; Q3 5.28%). Greater dispersion of national IDU prevalences was observed in Eastern Europe and Central Asia, and Asia and Pacific (IQR 1.91 and 1.47 respectively). Subnational areas with the highest IDU prevalence among adults (8–14.9%) were Shymkent (Kazakhstan), Balti (Moldova), Astrakhan, Barnadul, Irtkustk, Khabarovsk, Kaliningrad, Naberezhnyje Chelny, Penza, Togliatti, Volgograd, Voronez, and Yaroslavl (Russia), Dushanbe (Tajikistan), Ashgabad (Turkmenistan), Ivano-Frankivsk and Pavlograd (Ukraine) and Imphal, Manipur (India). 66% (297/447) of the IDU estimates were reported without technical information. Data on the IDU age/gender distributions are also scarce or unavailable for many countries. In 11 Eastern European and Central Asian countries the age group $\leqslant$20–29 represented $>$50% of the total. The proportion of IDU men was 70%–90% in Eastern Europe and Central Asia, and there was a marked absence of data on women outside this region.

Conclusion: Unfortunately data on IDU prevalence available to national and international policymakers is of an unknown and probably yet to be tested quality. This study provide baseline figures but steps need to be taken now to improve the reporting and assessment of these critical data.

An aditional table and figure are available on our website.

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Evidence concerning the size of injecting drug user (IDU) populations and their basic sociodemographic characteristics is scarce. However, gathering better knowledge has important implications in terms of public health. In seven out of 10 UNAIDS regions, the use of contaminated drug injecting equipment is a major vector for HIV/AIDS transmission[1–3] and it has been estimated that between 5–10% of all new HIV infections are as a direct result of unsafe injecting drug use[4] and 10% of the HIV/AIDS cases worldwide are attributed to IDU.[5] Hepatitis C virus is reported to be over 70% in 39 countries and 93 subnational areas.[6]

We reported previously that available estimates suggest 13.2 million IDUs in 130 countries worldwide, of whom 10 million live in developing and transitional countries.[7] The 13.2 million estimate represented an increase over the 5.5 million IDUs estimated in 1992 in 80 countries[1] that can in part be explained by the larger number of countries (likely that drug use is diffusing into additional countries[8]), but possibly also by improving reporting systems. None of these estimates gave specific age or gender breakdowns.

The United Nations General Assembly Special Session on HIV/AIDS, Declaration of Commitment on HIV/AIDS, acknowledged that, ''by the end of 2000, 36.1 million people worldwide were living with HIV/AIDS, 90% in developing countries''.[9] The number of people living with HIV in 2005 totals 40.3 million. Almost 5 million people were newly infected with the virus in 2005.[10] The increasing proportion of women among HIV positives is apparent now not only in sub-Saharan Africa (57%) but in Eastern Europe and Central Asia[10] where the injection of drugs is the predominant route of HIV transmission (26% of HIV cases were women in 2003, 28% in 2005) and in South and South East Asia (25% HIV cases were women in 2003, 26% in 2005)[10] where IDUs contribute to between 4% to 26% of HIV infections depending on the country.[11]

Abbreviations: IDU, injecting drug user; PDU, problematic drug user; RAR, Rapid Assessment and Response.

Young people can become highly vulnerable to HIV in the wake of the rapid social change, economic hardship, and increased insecurity experienced in many developing/transitional countries. Data on increased sexual transmission of HIV in a number of Eastern European countries are linked to IDUs and their sexual partners engaging in unsafe sex[12] but the knowledge about the age and gender distribution of IDUs is scarce.

The reasons to improve data on the size of IDU populations are clear. Unsafe injecting drug practices contribute to the spread of HIV and other infectious diseases. IDUs also use both social and health services. In order to develop and target interventions, policymakers and planners need to know about the characteristics of IDUs, their risk behaviours, and where they may be found. Population-level data allows macro-level investigation of differences in IDU prevalence, and to move beyond individual-level causes.

Describing the IDU populations is a priority for basic assessment and routine surveillance,[13] and is part of the UN surveillance efforts—for example, annual reports questionnaires (ARQ) for UN member states (UNODC).[14] Also, as data quality improves, analyses of interurban or international rates of IDUs can assist policy development.[15 16]

In this paper we update national, and provide subnational, estimates of IDUs in developing/transitional countries where almost 80% of IDU cases worldwide are located and provide information on the age and gender breakdown among IDUs.

METHODS

A literature review was conducted of both grey and published reports of population estimates of IDUs (1998–2005) including updates from previously reported estimates[7] and their gender and age distributions in developing/transitional countries. Countries were categorised as ''developing or transitional'' in accordance with the *Human Development Report 2003*[17] and grouped into regions according to UNAIDS classification.[2]

The main data source for estimates of IDUs was the Reference Group on HIV/AIDS Prevention and Care among IDUs in Developing and Transitional Countries database.[18] All sources are available on request from the corresponding author. Estimates were classified as follows: A, estimates produced using indirect single or multiple methods (for example, capture-recapture, multiplier); B, estimates from population surveys; C, experts' judgement and information on how the estimate was produced (for example, Rapid Assessment and Response (RAR) studies) and registered cases; D, estimates reported without technical information.

Estimates of IDUs are presented in the online table (http://www.stijournal.com/supplemental). Location (country and specific site) are presented in column 1–2. Country/subnational area adult population (15–64 years old) is displayed in column 3. The low, high, and midpoints (when available) of all the available estimates are presented in columns 4–6. Estimates for the subnational sites other than capital cities with fewer than 10 000 IDUs are summaried and the sites listed as footnotes.

Prevalence of the IDU population—calculated from the low, high, and midpoint of the available estimates (when available) among the country/subnational area's general adult population are in columns 7–9. Finally, type of estimates according to the ''A to D'' system above, are presented in column 10.

Median, quartile 1 (Q1), quartile 3 (Q3), and minimum and maximum values of national IDU prevalences were calculated for four regions: ''Eastern Europe & Central Asia'', ''Asia & Pacific'' (''South & South East Asia'' and ''East Asia & Pacific'' regions), ''Middle East & Africa'' (''North Africa & Middle East'' and ''Sub-Saharan Africa'' regions) and ''Latin America & the Caribbean'' (''Latin America'' and ''The Caribbean'' regions).

Data on gender and age distribution where available were extracted from published reports. In addition, over 100 authors were contacted and asked to provide age and gender breakdowns of their samples. Countries' (plus age/gender distributions) populations were retrieved from the US Census Bureau.[19] Cities' populations were retrieved from GeoHive[20] or CEEHRN.[21] National age and gender distributions were imputed to the specific sites' populations. Age and gender distributions were provided to allow imputation applied to national and subnational IDU estimates presented here.

RESULTS

Quantitative evidence of an IDU population was found for 105 developing and transitional countries and territories, and 243 subnational populations. Ranges of estimates of IDUs are presented in the online table (http://www.stijournal.com/supplemental).

The rating of estimates suggested that, of the available 447 estimates, 12 were categorised as ''A'' (indirect single or multiple methods), five ''B'' (population survey), 133 as ''C'' (experts' judgment—for example, RAR studies, registered cases, estimates based on local polls, and questionnaires to clients of local services and similar), and 297 were ''D'' (no technical information).

Developing and transitional countries with the largest populations of IDUs are: Russian Federation (midpoint: 2 250 000), India (midpoint: 1 112 500), China (midpoint: 1 928 200), and Brazil (midpoint: 800 000). Subnational areas with the largest IDU populations (estimate's midpoint: $\geqslant$35 000) are: Warsaw (50 500), Barnadul (41 951), Irtkustk (50 000), Nizhny-Novgorod (61 458), Penza (35 000), Voronez (35 000), St Petersburg (60 000) and Volgograd (77 000) in Russia, New Delhi (35 000) and Mumbai (38 000) in India, Jakarta (78 750), and Bangkok (36 000).

Updated estimates were found for 13 countries, which generally increased the range of the estimates but the midpoint was unaffected. For example, the Czech Republic new lower estimate is 17 700[22] (previous: 25 000[7]) and therefore is unlikely to affect significantly regional estimates. Further examples are highlighted below.

Subnational areas with the highest IDU prevalence among adults 15–64 years old were: Bilina (23.6%), Decin (12%), and Litvinov (14.9%) (Czech Republic), Irtkustk (10.3%) and Volgograd (11.2%) (Russia), Pavlograd (Ukraine) (11.8%) and Imphal-Manipur (India) (8%).

Analysis of basic central statistic and dispersion measures was applied to the midpoint of the IDU prevalence found at the national level, in four regions.

By region, the median value of the IDU prevalence in Eastern Europe and Central Asia suggests 0.65% IDU prevalence (minimum 0.31%; maximum 2.22%) with 25% (Q1) of the national prevalences under 0.79% and 75% (Q3) $\leqslant$1.74%. In Asia (South and South East Asia, and East Asia and Pacific regions) the median suggests 50% of the national IDU prevalence are $\leqslant$0.24% (minimum 0.004%; maximum 1.47%) while Q1 suggests 25% of national prevalence of IDU are $\leqslant$0.37% and Q3 suggests 75% of them value $\leqslant$1.1%. The regional median for the Middle East and Africa (North Africa and Middle East and sub-Saharan Africa regions) suggest 50% of the national IDU prevalences are $\leqslant$0.2% (minimum 0.0003%; maximum 0.35%) with Q1 suggesting 25% of the national prevalences are under 0.09% and Q3 showing 75% of the estimates value $\leqslant$0.26%. Finally, the median value for Latin America and the Caribbean together suggest half of the national IDU

prevalences are ⩽0.12% (minimum 0.002%; maximum 7.04%) with Q1 identifying 25% of the national IDU prevalence as ⩽1.76% and Q3, 75% of the estimates at ⩽5.28%. Greater dispersion of national IDU prevalences was observed in Eastern Europe and Central Asia, and Asia and Pacific with interquartile ranges (IQR) equalling 1.91 and 1.47 respectively in comparison with 0.35 and 0.69 as IQR values for the Middle East and Africa, and Latin America and Caribbean, respectively.

Eastern Europe and Central Asia and transitional countries in Western Europe

In Eastern Europe and Central Asia 233 estimates of IDUs were identified for 198 sites (23 national territories) of which 114 subnational areas have populations of <5000 IDU (midpoint of available estimates). Eighty four sites report IDU populations ⩾5000 (30 in Russia and 12 in Ukraine).

Six countries had updated national estimates (Bulgaria, Czech Republic, Kyrgyzstan, Latvia, Russia, and Ukraine). In Bulgaria new subnational estimates (for example, Sofia, 10 000–20 000 IDU) surpass and increase the previous national estimate (4000–12 000[7]) to 39 000.[21 23] In the Czech Republic the new lowest estimate is 17 700[22] (previous 25 000[7]). The midpoint decreases from 26 000[7] to 21 932. In Kyrgyzstan a new estimate raises the highest limit of the interval to 70 000[24] (new midpoint 44 398). In Latvia recent national estimates increase the highest estimate from 12 000[7] to 28 000[21] (new midpoint 18 725). In Russia the upper range of estimates was increased from 2.5 million to 3 million[3 22] (midpoint 2.25 m).

The largest IDU estimates for subnational areas (midpoint of available estimates) were in Warsaw, Poland (50 500),[21] Barnadul (41 951),[21] Irtkustk (50 000),[21] Nizhny-Novgorod (town and region) (61 500),[21] St Petersburg (50 000–0 000[25] and 70 000[21]) and Volgograd (77 000)[21] in Russia.

Remarkably high IDU prevalence (12%–24%) was estimated for Bilina, Decin, and Litvinov (Czech Republic), in Irtkutsk and Volgograd (Russia), and in Pavlograd (Ukraine). Furthermore, IDU prevalence over 5% was found in another 23 sites.

Ten estimates were available on the four transitional countries in Western Europe. There was a conflict between estimated number of IDUs in Serbia and Montenegro as a whole (27 000)[7] and new estimates for Belgrade (30 000[21]). Slovenian estimates have also been updated with the new highest estimate at 10 000.[23]

South and South East Asia and East Asia and Pacific

In South and South East Asia, 131 estimates of IDU population were available in 74 sites (18 national territories) In six countries, updates estimated modify those previously reported. In five of them the new estimates modify the lowest estimate. Bangladesh: the new lowest estimate of 20 000[26] suggest 5000 fewer individuals than in previous estimates of 25 000.[7] India: new lowest estimate, 200 000,[27] versus previous estimates of 563 000,[7] therefore the midpoint decreases from 1 294 000[7] to 1 112 500. Indonesia: new lowest limit of the interval 123 849[28] versus previous estimates of 160 000.[7] Iran: new lowest estimate of 70 000[29] versus previous estimates (112 000[7]). Midpoint decreases from 206 000[7] to 185 000. Nepal: new lowest limit of the range of 19 500[29] versus previous estimates of 24 000.[7] In the case of Thailand a higher estimate than previously found modifies both the highest limit of the range and its midpoint: new highest limit of the interval of 160 000[29] versus previous estimates of 76 000.[7] Mid point increases from 48 000[7] to 90 080.

Three countries had IDU populations <5000: Brunei Darussalam, Cambodia, and Timor-Leste. Thirty two subnational areas had an estimated IDU population of <5000 IDU and 13 subnational areas had IDU populations ⩾10 000. Those with the largest IDU populations were New Delhi (midpoint 35 000),[27] Mumbai (midpoint 38 000),[27] Jakarta (midpoint 78 750),[27 30] and Bangkok (36 000).[31] All available estimates of subnational Indian areas suggested IDU populations ⩾10 000. IDU prevalence ⩾0.5% was estimated for 9/74 sites: the highest was Imphal (Manipur) at 8%.

In East Asia and Pacific developing/transitional territories, 14 estimates were found for eight countries and territories. New estimates for Hong Kong suggest 20 000–40 000 IDUs and key informants advised the deletion of the previous 13 000 IDU[7] as the lowest limit of the interval as unrealistic. In Yunnan the estimated IDU population is 15 247[32 33] but only in Hong Kong was IDU prevalence among adults >0.5% at 0.6%. China accounts for the overwhelming majority of estimated IDUs in the region and the second largest estimate of IDUs worldwide (following Russia).

North Africa and the Middle East and sub-Saharan Africa

In North Africa and the Middle East no new national or subnational estimates since the last report[7] were found. Only national estimates are available for 20 developing/transitional countries, with Turkey and Egypt as the countries with the largest IDU populations (99 887 and 88 618 respectively[7]).

Quantitative evidence of IDUs in sub-Saharan Africa had been reported previously in nine countries[7] and Kenya has been recently added to the list with 300 IDUs estimated in Malindi.[34] One estimate was located for each of the 10 countries. No country in any of the two regions reached the 0.5% prevalence of IDUs.

Latin America and the Caribbean

In Latin America, estimates for subnational areas were only found for Buenos Aires[35] (3000–3500) and Rio de Janeiro (7500).[36] The largest IDU populations are estimated in Brazil (800 000), Mexico (96 232), and Argentina (40 600). IDU prevalence among adults only surpassed 0.5% in Brazil (0.69%).

In the Caribbean, the largest estimate of IDUs—13 500—was in San Juan (Puerto Rico) where the IDU population makes 0.53% of the adult population. Minor IDU populations have been reported elsewhere.

Age and gender breakdown

Fourteen of the over 100 authors contacted to gather information on age and gender IDU sample breakdowns sent the information requested. A total of 67 datasets were made available (reported HIV cases associated with IDUs (n = 18) or specific studies that used IDU samples (n = 49)) for 33 countries and 46 subnational areas (table 1).

In Eastern Europe and Central Asia the 38 datasets accounted for 19/23 countries in the region with evidence of IDUs. Eighteen of these were HIV case reports. In 11/19 countries with information on age/gender breakdowns, the group ⩽20–29 accounted for >50% of the individuals in each gender: Belarus, Bulgaria, Czech Republic, Estonia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Poland, Romania, and Russian Federation. In nine of the samples where gender prevalence could be calculated, men represented ⩾70% in seven. In Hungary and Togliatty, their percentages were lower (45.5% and 63.4% respectively).

Regarding age groups, the youngest were in Russia (<15; 369) and Belarus, Latvia, Moldova, and Poland (<15; one individual in each sample). Individuals aged 15–19 were among the samples in Russia (n = 26 221), Estonia (n = 1018), Belarus (n = 604), Poland (n = 508), Latvia

(n = 364), Moldova (n = 167), Togliatty city (n = 70), Lithuania (n = 28), St Petersburg (n = 26), Kazakhstan (n = 25), Kyrgyzstan (n = 13), and Armenia, Azerbaijan, Croatia, Czech Republic, Bulgaria, Georgia, Hungary (<5 individuals 15–19).

Twenty datasets were available in South and South East Asia: 11 from Bangladesh, four from Indonesia, and one each from India, Malaysia, Pakistan, Thailand, and Viet Nam. The Bangladeshi datasets were for subnational coded areas (no specific location available). They were collapsed into one single set and the gender and age distribution of the country's population used to impute the age/gender IDU distribution. In Indonesia, due to non-availability of estimates of IDUs in subnational areas, only Jakarta data could be used to impute age/gender distribution from a sample. Bangladesh was one of the few countries with any data on women, but too few (n = 17) to make any assessment of age distribution. Men 25–34 years old followed by men over 40 years old were the two more prevalent age groups. In Kolkata, the most prevalent group were men ⩾30. In Penang (Malaysia), men ⩾30 represented 98.3% of the sample and in Lahore (Pakistan) men 25–29 accounted for 30.4% of the sample, men 30–35 accounted for 25.6%, and men 36–49 were 24% of the sample. Only in Indonesia did the youngest IDUs represent the largest proportion. In Jakarta, males ⩽20–24 represented 70% of the sample, in Label Sarubaya those aged 18–24 accounted for 57%. In Bandung, 87.5% of the sample were 18–24; and in the last Indonesian sample (Jakarta, Label Surabaya, and Bandung), males 18–24 years old accounted for 72.5% of subjects.

Only six datasets from this region contained gender breakdowns (in the rest women equalled 0). The presence of women in five other datasets was extremely low (1, 2, 5, and 11 women in each sample), except in the set from Hanoi, Viet Nam (women: 119, men: 526). The combined dataset from Bangladesh showed an overwhelming number of men (99.5%); men also were 95.8% of the sample from China.

The only two samples of IDUs available in North Africa and the Middle East were both from Mashhad (Iran). They were individuals attending a drug treatment centre. The age distribution suggested three prevalent age intervals: <20–24, 25–29, and 30–34 (~20% of the sample each interval). In the two samples from sub-Saharan Africa (Nigeria and Kenya), males predominated. Lagos sample: men = 41 versus women = 4; 99.5% male; and Nairobi: men = 92, women = 14; 86.8% male. Finally, in Latin America, three samples—from Rosario (Argentina) Rio (Brazil), and Bogotá (Colombia)—were available. Men were 79.3% of the Rosario sample; 93.7% of the Rio sample; and 79.3% of the Bogotá sample.

DISCUSSION

Information on IDU subnational populations in developing and transitional countries was found for 105 developing/transitional countries[7] and 243 subnational areas (197 in Eastern Europe and Central Asia and 74 in South and South East Asia), with updates for 13 countries. IDU age and gender breakdowns were analysed in 67 datasets and for 33 countries.

Regionally, Eastern Europe and Central Asia stands up as the region with the highest IDU prevalence followed by Asia and Pacific (''South & South East Asia'' and ''East Asia & Pacific''). The greatest dispersion of IDU prevalences were observed in Eastern Europe and Central Asia, and Asia and Pacific, while the lowest was observed in the Middle East and Africa (''North Africa & Middle East'' and ''Africa'' regions).

In 13 countries, updated estimates modify those previously reported: Bulgaria, Czech Republic, Kyrgyzstan, Latvia, Russia, Ukraine, Serbia and Montenegro, Bangladesh, India, Indonesia, Iran, Nepal, and Thailand. However, the central estimates previously published mostly remain unchanged. Unfortunately, there is insufficient information to determine whether the new estimates are more reliable or are the result of an increase of number of estimates collected.

Twelve subnational areas had IDU populations of greater than 35 000: Warsaw (Poland), Barnadul, Irtkustk, Penza, Voronez, St Petersburg, and Volgograd (Russia); New Delhi and Mumbai (India), Jakarta (Indonesia), and Bangkok (Thailand). However, there was also a lack of estimates for many large cities (for example, Moscow) which needs to be taken account of and addressed. Seven subnational areas with a high IDU prevalence were identified. Bilina, Decin, and Litvinov (Czech Republic), Irtkustk and Volgograd (Russia), Pavlograd (Ukraine) and Imphal, Manipur (India). Six of them are in Eastern Europe. This could reflect the explosive expansion of numbers of IDUs in some countries of Eastern Europe, but one should bear in mind the larger populations in Asia that make it more difficult to reach higher prevalence even with large estimates of IDUs. IDU prevalence in subnational areas must, however, be treated with great caution; not only might the estimates be weak but denominators also may be inaccurate, underestimating the true population and leading to an overestimate of IDU prevalence.

National and subnational IDU estimates based only in developing/transitional countries may also obscure important variations in the prevalence of IDUs in socially defined subgroups. In the United States, for example, there were on average 66.4 injectors per 10 000 people in each of the 96 largest metropolitan areas in 1998.[37] However, the prevalence of IDUs in these metropolitan areas varied by race/ethnicity: black adults were more than twice as likely to inject drugs as white adults.[38] Notably, this racial/ethnic ''disparity'' in IDUs is not uniform across metropolitan areas: in 4% of these areas, black adults were substantially less likely (relative risk ⩽0.67) to inject drugs than their white counterparts, while in 82% of the metropolitan areas they were considerably *more* likely (relative risk ⩾1.5) to do so.[38]

Unfortunately, the potential reliability of the available estimates (n = 447) of IDUs in developing and transitional countries is largely unknown. 297 had been reported without technical information and in many of the remaining 150 the technical information available allowed only a rough understanding of the method used. Clearly, interpretation must be cautious and perhaps sceptical. However, these are the only estimates available and are being used by national and international policymakers. We need, therefore, to urge greater scrutiny and efforts to improve the evidence base. Methods of estimating the prevalence of IDUs have been reviewed extensively[39–41] and in selected countries better evidence has been obtained through multiple indirect and direct methods, such as in Poland, the Czech Republic, and Slovenia. In general, indirect methods are recommended because of the lack of power and numerous response biases that affect population surveys attempting to estimate numbers of IDUs. Indirect methods tend to use existing routine data on IDUs in contact with police, treatment, or other services and generate estimates, or make assumptions on the proportion of the IDU population that is observed by the data sources. Examples of indirect methods include capture-recapture, multiplier, truncated Poisson, synthetic estimation, and back-calculation. Often indirect methods operate at a city level, with countrywide estimates imputed.

Table 1 Gender and age distribution of injecting drug user samples

			Males		Females			Both genders		
Country	**Site**	**Age group**	**n**	**%***	**n**	**%***	**%****	**n**	**%***	**Type of source**
Eastern Europe & Central Asia										
Azerbaijan	National	<20–24	2	0.9	1	25.0	n = 4 (1.7)	3	1.3	HIV+ DUs†
		25–29	5	2.2	0	0.0		NA	NA	
		20–29	60	26.0	3	75.0		63	26.8	
		30–39	130	56.3	0	0.0		NA	NA	
		⩾40	34	14.8	0	0.0		NA	NA	
		All	231	100.0	4	100.0		235	100.0	
Belarus	National	<20–24	934	31.4	358	41.8	n = 855 (22.3)	1292	33.7	HIV+ DUs†
		25–29	477	16.0	110	12.9		587	15.3	
		20–29	1067	35.9	293	34.3		1360	35.5	
		30–39	448	15.1	87	10.2		535	14.0	
		⩾40	48	1.6	7	0.8		55	1.4	
		All	2974	100.0	855	100.0		3829	100.0	
Bulgaria	National	⩽20–29	3	60.0	6	100.0	n = 6 (54.5)	9	81.8	HIV+ DUs†
		30–39	1	20.0	0	0.0		NA	NA	
		⩾40	1	20.0	0	0.0		NA	NA	
		All	5	100.0	6	100.0		11	100.0	
Croatia	National	⩽20–24	23	7.7	0	0.0	n = 6 (1.9)	NA	NA	HIV+ DUs†
		25–29	81	26.8	0	0.0		81	26.3	
		30–39	142	47.0	5	83.3		147	47.7	
		⩾40	56	18.5	1	16.7		57	18.5	
		All	302	100.0	6	100.0		308	100.0	
Czech Rep	National	⩽20–24	11	40.7	4	80.0	n = 5 (15.6)	15	46.9	HIV+ DUs†
		25–29	7	25.9	1	20.0		8	25.0	
		30–39	6	22.2	0	0.0		NA	NA	
		40–49	3	11.1	0	0.0		NA	NA	
		All	27	100.0	5	100.0		32	100.0	
Estonia	National	⩽20–29	1736	95.3	581	96.8	n = 600 (24.8)	2317	95.7	HIV+ DUs†
		30–39	77	4.2	18	3.0		95	3.9	
		40–49	8	0.4	1	0.2		9	0.4	
		All	1821	100.0	600	100.0		2421	100.0	
Georgia	National	⩽20–24	23	7.7	0	0.0	n = 4 (1.3)	NA	NA	HIV+ DUs†
		25–29	81	26.8	0	0.0		NA	NA	
		30–39	142	47.0	4	100.0		146	47.7	
		⩾40	56	18.5	0	0.0		NA	NA	
		All	302	100.0	4	100.0		306	100.0	
Hungary	National	⩽20–24	1	11.1	2	66.7	n = 3 (25.0)	3	25.0	HIV+ DUs†
		25–29	1	11.1	0	0.0		NA	NA	
		30–39	4	44.4	1	33.3		5	41.7	
		⩾40	3	33.3	0	0.0		NA	NA	
		All	9	100.0	3	100.0		12	100.0	
Kazakhstan	National	⩽20–29	225	53.6	58	69.0	n = 84 (16.7)	283	56.2	HIV+ DUs†
		30–39	139	33.1	23	27.4		162	32.1	
		⩾40	56	13.3	3	3.6		59	11.7	
		All	420	100.0	84	100.0		504	100.0	
Kyrgyzstan	National	⩽20–24	75	26.3	8	50.1	n = 16 (5.3)	83	27.6	HIV
		25–29	74	26.0	3	18.8		77	25.6	positiveDUs†
		30–39	102	35.8	3	18.8		105	34.9	
		⩾40	34	12.0	2	12.5		36	12.0	
		All	285	100.0	16	100.0		301	100.0	
Latvia	National	⩽20–24	723	50.3	259	61.9	n = 418 (22.5)	982	52.8	HIV+ DUs†
		25–29	322	22.4	69	16.5		391	21.1	
		30–39	313	21.8	65	15.6		378	20.4	
		⩾40	81	5.7	25	5.9		106	5.7	
		All	1439	100.0	418	100.0		1857	100.0	
Lithuania	National	⩽20–24	132	23.1	17	32.1	n = 53 (8.48)	149	23.9	HIV+ DUs†
		25–29	159	27.8	13	24.5		172	27.5	
		30–39	212	37.1	18	34.0		230	36.8	
		⩾40	69	12.1	5	9.4		74	11.9	
		All	572	100.0	53	100.0		625	100.0	
Moldova	National	⩽20–24	142	13.0	39	14.0	n = 279 (8.48)	181	13.2	HIV+ DUs†
		25–29	12	1.1	4	1.4		16	1.2	
		20–29	625	57.3	162	58.1		787	57.5	
		30–39	261	23.9	67	24.0		328	24.0	
		⩾40	50	4.6	7	2.6		57	4.2	
		All	1090	100.0	279	100.0		1369	100.0	
Poland	National	⩽20–24	1457	39.3	679	60.2	n = 1128 (23.9)	2094	44.4	HIV+ DUs†
		25–29	1078	30.0	248	22.0		1326	28.1	
		30–39	937	26.0	166	14.7		1103	23.4	
		⩾40	164	4.6	35	3.1		199	4.2	
		All	3594	100.0	1128	100.0		4722	100.0	
Romania	National	20–29	6	85.7	1	100.0	n = 1 (8.0)	7	87.5	HIV+ DUs†
		30–39	1	14.3	0	0.0		NA	NA	
		All	7	100.0	1	100.0		8	100.0	

Table 1 Continued

			Males		Females			Both genders		
Country	**Site**	**Age group**	**n**	**%***	**n**	**%***	**%****	**n**	**%***	**Type of source**
Russia	National	⩽20–24	63,388	61.5	17 556	70.8	n = 24,757	80 944	63.3	HIV+ DUs†
		25–29	23,998	23.3	4498	18.2	(19.4)	28 496	22.3	
		30–39	12,682	12.3	2264	9.1		14 946	11.7	
		⩾40	3105	3.0	439	1.8		3544	2.8	
		All	103,173	100.0	24757	100.0		127 930	100.0	
South & South East Asia										
Bangladesh	11 samples collapsed in one**	⩽20–24	517	14.2	1	5.9	n = 17 (0.5)	518	14.1	Sentinel surveillance groups
		25–29	892	24.5	5	29.4		897	24.5	
		30–34	758	20.8	5	29.4		763	20.8	
		35–39	625	17.2	2	11.8		627	17.1	
		⩾40	852	23.4	4	23.6		856	23.4	
		All	3644	100.0	17	100.0		3661	100.0	
India	Kolkata	⩽20–24	11	5.6	(Only men)					Specific study‡
		25–29	28	14.4						
		30–34	55	28.2						
		35–39	59	30.3						
		⩾40	42	21.4						
		All	195	100						
Indonesia	Jakarta	⩽20–24	147	70.0						Specific study§
		25–29	44	21.0						
		30–35	9	4.3						
		>35	10	4.8						
		All	210	100.0						
Iran	Mashhad (2 samples)	⩽20–24	85	26.3						Specific study¶
		25–29	79	24.4						
		30–34	72	22.3						
		35–39	49	15.2						
		⩾40	38	11.8						
		All	323	100.0						

Notes: All figures have been rounded up to one decimal or to the first number ≠ 0.
NK, not known; NA, not applicable; IDU %, IDU prevalence among adult population aged 15–64.
*Prevalence of age/gender group (n = sample's gender/age distribution); **Female prevalence in each sample; ***Sites' codes: Central-A (92), Central-A (402), Central-A (418), Northwest-A (416), Northwest-B (120), etc.
†Source: Breakdowns provided by the ''European Centre for the Epidemiological Monitoring of AIDS'' from reported HIV cases by transmission route (HIV/AIDS Surveillance in Europe. End-year report 2004. 2005, No 69)
‡Source: Panda S, Saha U, Pahari S, *et al*. Drug use among the urban poor in Kolkata: Behaviour and environment correlates of low HIV infection. *Natl Med J India* 2002;**15**:128–34.
§Source: Pisani E, Dadun, Sucahya PK, *et al*. Sexual behavior among injection drug users in 3 indonesian cities carries a high potential for HIV spread to non-injectors. *JAIDS* 2003;**34**:403–6.
¶Source: Rahbar AR, Khoshonood K, Rooholamini S. Prevalence of HIV infection and other bloodborne infections in incarcerated and non-incarcerated injection drug user (IDUs) in Mashhad, Iran. *Int J Drug Policy* 2004;**15**:151–5.

Estimates using indirect methods are available in the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)[42] reports for a number of countries included in this review but accounting not only for IDUs but also for PDUs (problematic drug users) defined as ''injecting drug use or long duration/regular use of opiates, cocaine and/or amphetamines''.[41] In the Czech Republic the latest PDU estimate—treatment multiplier data—suggests 26 500 (25 000–28 100). This is a very similar range to the one presented in table 1 (26 805 (17 700–35 910)). The 2002 PDU estimate for Poland, 52 000 (33 000–71 000), produced using data from a population survey of 2002 from residential and outpatient drug treatment and from HIV cases shows 20 000 fewer IDUs than the lower bound in table 1 (96 514 (77 211–115 816)). The latest PDU estimate for Slovenia—7399, produced using capture-recapture methodology—is similar to the midpoint in the table. The similarities between the estimates of IDUs found and those reported for PDUs suggest a close numeric similarity between the IDU and PDU populations or a simple misquotation of figures originally accounting for PDUs and secondarily quoted as IDUs.

Specific data on the IDU age/gender distributions are scarce and unavailable for many countries. We found information on 33 countries and 46 subnational areas.

In 11 Eastern European and Central Asian countries the age group with the largest number of IDUs was the ⩽20–29 year olds and samples with a relevant number of very young individuals (<15 or 15–19) were found in Russia, Belarus, Estonia, Poland, Latvia, and Moldova. IDU prevalence appears higher in men (70%–90% of individuals in the samples were men) although it should be noted that women diagnosed with HIV in some countries may heavily underreport injecting drug use as a mode of exposure. The effect that the origin of the sample might have had in the age breakdowns obtained is unclear. Eighteen out of 37 datasets in the region came from HIV cases reports, including all but one national dataset—that for Hungary, where only gender distribution was available. Therefore, although an age distribution with higher prevalence in the younger age groups would be a priori expected, no comparison could be made with samples recruited from other settings. Information from other regions was scarcer and little could be found about gender/age distributions. The lack of information about gender distributions could reflect greater stigma and problems in reaching women IDUs.

Nevertheless, the information provided by the 67 datasets gathered on gender/age distribution of IDUs represents a first approximation of this issue and can provide a base for more elaborate indirect methods to estimate gender/age distributions. Describing the IDU population is a priority for basic assessment and routine surveillance.[13]

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